TRAINING LEADERS FOR FORCE XXI: An Azimuth for CGSOC Tactics Instruction

A Monograph
By
Major Jeffrey D. Lau
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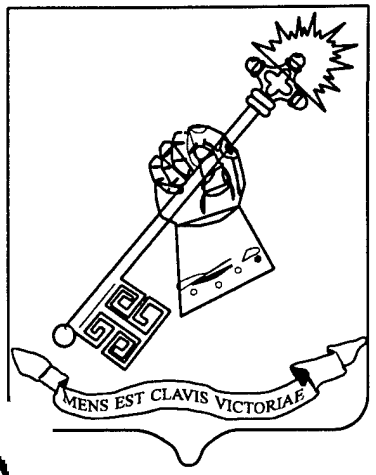

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ABSTRACT

TRAINING LEADERS FOR FORCE XXI: AN AZIMUTH FOR CGSOC TACTICS INSTRUCTION by MAJ Jeffrey D. Lau, USA, 58 pages.

This monograph discusses attributes needed by tactical planners in the future and whether the CGSOC core tactics curriculum helps to develop these attributes in its students. Future battlefields will be confusing and ambiguous, requiring problem solvers with the capability to solve complex, divergent problems. The necessary skills are identified and CGSOC tactics instruction is examined to see if the curriculum is designed to develop these skills in tactical planners of the future.

The monograph first examines two historical examples of militaries facing strategic and technological change, specifically the US and German Armies during the interwar period of 1920-1940. The two approaches to officer education are analyzed and compared to determine methods and procedures that worked during the interwar period and would also be useful in the situation facing the US Army today. A survey of current literature on leader development reveals the leader skills many feel will be required for success in future conflicts.

An assessment of the CGSOC core tactics curriculum provides the basis for comparing what the Army needs to what the Army currently gets from its intermediate educational institution. Using Bloom's taxonomy of cognitive skills, the objectives of CGSOC tactics instruction are analyzed to determine the expertise level CGSOC students must demonstrate to successfully complete the course of instruction. The expertise level required for CGSOC is compared to necessary expertise levels projected for the future. This comparison reveals the gaps in the instruction that need to be filled.

Finally, three courses of action designed to bridge the gap are discussed. Criteria for evaluation are identified and the courses of action are analyzed according to these criteria. The three possible solutions are compared and the most suitable solution based on the comparison is presented as a recommendation.

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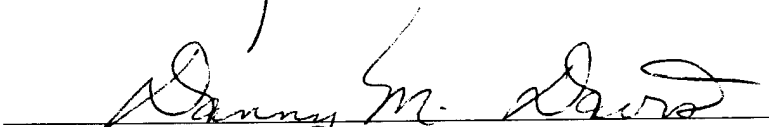

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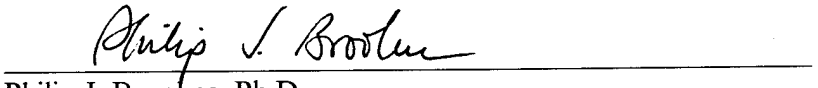

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TABLE OF CONTENTS

Introduction

In 1989, the world watched as the cold war ended in the city in which it had begun over forty years earlier. The fall of the Berlin Wall represented the beginning of the end for the Soviet Union. The chain of events in Europe that was initiated that night brought feelings of euphoria and hopes for a more stable world to the leaders of the western democracies. By 1991 it was clear that the fall of the Soviet empire would not come without a cost. The stability provided by repressive communist control was replaced by the instability of older feelings of militant nationalism. This led to numerous examples of violent civil conflict.

The resultant strategic environment has the United States struggling with the responsibilities of hegemony. The 1994 National Security Strategy states that while the Soviet Union has collapsed, "there remains a complex array of new and old security challenges America must meet as we approach a new century."[1] For the US Army, these challenges have led to various missions in increasingly remote places. Panama, Kuwait, Somalia, and Haiti are merely the most widely publicized. Militant nationalism, along with the ethnic and religious struggles that pervade this new strategic environment, make the arena of future conflict appear as complex as any we have ever experienced.

Meanwhile, a technology revolution continues to increase equipment of warfare capabilities. The innovations demonstrated in new reconnaissance, security and killing systems have greatly enhanced our ability to achieve quick decisive victory. On the other hand, these same enhancements make the environment more complex and can provide our enemies opportunities to attack us where we do not expect or are not prepared. How the US Army incorporates these changes while protecting itself from counteractions is critical to the success of

soldiers in the field. In the article Revolutions in Military Affairs, James R. Fitzsimonds and Jan M. Van Tol advise that

> what may be key to 'winning the innovation battle' is a professional military climate which fosters thinking in unconstrained fashion about future war. This is in part a function of having leaders. . . who will encourage innovation and - subject to reality checks - actually test and implement innovative ideas to maintain a preeminent military position.[2]

The attributes described above are in the category of **conceptual** leadership skills as outlined in DA Pam 600-80, Executive Leadership. Conceptual skills are "the cognitive skills necessary to understand the total organization, guide its progress, and place it properly within the context of the larger society."[3] Conceptual skills along with technical and interpersonal skills comprise the three broad areas of leader skills as described in DA Pam 600-80. While all three are critical, conceptual skills will become increasingly important in the environment of conflict described above. In the complex environment of the future, how can the US Army best prepare its leaders to develop and use conceptual leadership skills?

This monograph is a discussion of whether the core tactics curriculum of the Command and General Staff Officer Course (CGSOC) provides the officer-student the skills necessary for success as tactical planners in the next century. The focus on CGSOC is based on its role as the Army's professional military education course at the intermediate level of officer education.[4] CGSOC is the first institutional opportunity for field grade officers to receive an education in combined arms operations. According to DA Pam 600-3, Commissioned Officer Development and Career Management, the year-long course of study produces graduates with technical and tactical combined arms proficiency, an understanding of joint and combined operations, the ability to apply the perspectives of military history, and the ability to solve complex problems under pressure.[5] The foundation provided by CGSOC is critical for the future corps and division staff

officers it produces. The mission of CGSOC is "to educate selected officers in the conduct of military operations during war and conditions other than war in accordance with established doctrine and with emphasis at the corps and division level.[6]

The monograph will be further focused within CGSOC to the core tactics curriculum. CGSOC tactics instruction is designed to increase the student's understanding of our warfighting doctrine and help the student to synchronize combat operations at the tactical level from brigade through corps.[7] In the complex environment discussed earlier, the tactical problems faced by staff officers and planners at the brigade, division, and corps level will require more expertise than ever before. Since CGSOC is the only institutional education opportunity most field grade officers will have, the importance of effectively developing tactical expertise and conceptual skills within its students cannot be overstated.

This monograph is structured in four parts, each examining subordinate questions leading to conclusions about the research question. Part I will begin with a study of how other militaries of the recent past have dealt with the impending change in the nature of conflict. A study of officer education systems in the American and German Armies during the period preceding World War II will demonstrate the effectiveness of CGSC and German equivalents. A discussion of how these institutions adapted to their environments and prepared their graduates for the new types of warfare that exemplified the era will help to identify instructional techniques and methods that can be adapted to our current situation. This section will continue with a discussion of what attributes current authors and leaders feel the planner of the future will need. Coupled with the techniques and methods discovered earlier, the section will conclude with a discussion of what tactical planners should be able to do in the future, how armies of the past have solved similar problems, and the role CGSOC should play in this process.

Part II will describe the current CGSOC tactics curriculum and the tactical planner it produces. Special attention to the methods of instruction and the expertise required for completion will indicate the attributes the curriculum develops in its graduates. Insights from observer-controllers at the National Training Center will help to determine the weaknesses of the officer-students produced by the current process.

Part III will compare the findings from Part I with those of Part II to determine if there are gaps. If the research identifies gaps, the monograph will include recommendations to bridge these gaps and enhance the development of the CGSOC student. These recommendations will include changes to the methods of instruction and the content of the curriculum, better use of the resources available at Fort Leavenworth, and how to enhance learning by changing the composition of the tactics staff group. Part IV will include a discussion of any conclusions to be drawn from the research, a summary of the main points of the monograph, and a discussion of any implications discovered during the research.

I. Historical Perspective

The American System 1920-1940

Fort Leavenworth became a center for officer education in the Army during the 1920s and 30s. The National Defense Act of 1920 established the School of the Line and the General Staff College at Leavenworth as an integral part of a progressive education system. These schools provided the educational experience felt by many to be essential for the advanced education for officers in preparation for command and staff assignments.[8] As World War II approached, others who looked critically at the institution saw shortfalls in the preparation of its graduates.[9]

The United States' industrial strength and her role in the victory of 1918 made her a *de facto* world power, but Americans held to the belief that the Great War was the "war to end all wars." Most Americans in 1918 wanted a return to the nation's dominant pre-war strategic themes: continental defense and protection of Pacific possessions.[10] American diplomats worked to satisfy public opinion by signing various treaties throughout the 1920s in an attempt to preserve peace both in the Pacific and in Europe. American feelings of isolationism peaked in 1937 when a public opinion poll revealed 94 per cent of Americans wanted US foreign policy to focus on keeping America out of another war rather than on preventing one.[11]

The leadership of the Army struggled to put together a military policy to prepare the soldiers for a war that the country did not want. The lack of a significant threat in the eyes of civilian policy makers led to the National Defense Act of 1920. This legislation authorized an active force of 288,000 with provisions for National Guard and organized reserves. Also, this bill established a progressive educational system for the Army, providing for the Army School of the

Line and General Staff School at Fort Leavenworth and the Army War College in Washington DC.[12]

While both these institutions had existed previously, official establishment in congressional legislation enhanced the prestige of the schools. Officer education became increasingly important as Congress began to cut both funds for training and the size of the active force. Units were stripped and the Army was left with fewer officers and soldiers than required to man its units. Opportunities to conduct realistic field training were limited by lack of training funds and insufficient soldiers to train for the missions assigned.[13] Officers found themselves spending more time in the schoolhouse, both as students and instructors. Timothy K. Nenninger found that of the 34 corps commanders in World War II, 25 had spent 10 or more years as students or instructors between the wars.[14] The time spent at the schoolhouse was important to development of these future leaders since limited developmental opportunities existed with units in the field.

Students arriving at Fort Leavenworth between 1922 and 1939 found a curriculum designed to train staff officers and commanders at division and corps level. Students spent either one or two years in the course depending on the need for graduates in the field. Two-year courses of instruction were provided from 1928 to 1935.[15] The primary tool for instruction was the **applicatory method** which included board-based battle simulations, terrain rides, and staff rides.[16] According to this methodology, students were first lectured on tactical principles. They were then formed into staffs and either fought against each other or an instructor during a map exercise.[17] Tactical principles were derived from US experience in World War I as well as from the emerging doctrine being developed at Fort Leavenworth. The faculty developed "school solutions" for these tactical problems.

Historians disagree on whether "school solutions" limited the student innovation and imagination applied to the developing doctrine. Timothy K. Nenninger asserts that school solutions were only used "as a means of comparison." They were intended to provide "*a* solution, not the only solution."[18] Boyd L. Dastrup, on the other hand, asserts that "promotion and job security demanded orthodoxy and adherence to official Army doctrine."[19] Critics complained that, based on the instructional materials and the doctrine developed during the period, Leavenworth was "a repository of old tactics based upon a bygone age, as commandants and faculty members preserved the status quo."[20] Compliance, not innovation, was fostered among the students. The use of a "school solution" to critique an exercise, no matter how hard officials tried to convince the students otherwise, led to the use of a "school solution" to answer examination questions. MG Stuart Heinzelman, the commandant from 1929-1935, welcomed creative solutions during exercises, but advised students to use the approved solutions on their examinations.[21] Most students identified the benefit gained from the illustration of the principles and the experience of preparing and giving written and verbal orders. Many complained that the map exercises were artificial and some did not agree with these approved solutions to the tactical problems.[22]

One of the harshest critics of CGSC was General George C. Marshall. As World War II approached, Marshall was outspoken about how the education at Fort Leavenworth was being presented. In 1937, he expressed his criticism to the Deputy Chief of Staff of the Army about CGSC. He felt the tactical instruction was too formal and orderly. He felt that using scenarios with well-trained units at full strength did not prepare the student for what they would face in actual combat. Rather than a concentration on "ponderous technique and formal tactics," he felt Leavenworth should provide training on when to make decisions and how to cope with the

situations of battle.[23] He wanted the education of officers to be based on the reality he expected the students would find once they returned to the field.

Nenninger states that some of this criticism was misplaced. Marshall wanted more field training and practical experiences which were impossible in a time of fiscal limitations. It is also true that during this period CGSC did create a "generation of tactically and technically competent officers."[24] Marshall's criticism of the set-piece nature of the instruction was, however, correct. He knew that success in war required imagination and innovation, the elements of conceptual leadership.

The expanding need for CGSOC graduates in the divisions and corps of the interwar period made it appropriate to adopt a method of instruction designed to produce as many competent graduates as possible. Attempts to consistently provide a two-year course were mostly unsuccessful due to the urgent need in the field. The focus on application of basic concepts provided competent graduates. An opportunity to develop innovative, creative graduates was missed. The German Army during the same period refused to compromise on quality at the expense of quantity.

The German System 1920-1940

The strategic environment facing the German Army after World War I was different from that facing the Americans. The Versailles Treaty imposed a strict manpower limit of 100,000 officers and men. Under the provisions of the treaty, the War Academy and all cadet training schools were ordered disbanded along with the German General Staff. It also allowed no German "offensive" weapons such as combat aircraft, heavy artillery, or tanks.[25] The German leadership grudgingly concluded that acceptance of the treaty was the only alternative. As the allies took

measures to ensure compliance, the Germans began to plan the future re-establishment of an adequate military. General Hans von Seekt became the first Chief of the Troop Office in November 1919 and began to build an army from scratch.[26]

Seekt was a product of the military tradition of Moltke and Schlieffen. He believed, as he had been taught, that wars were won by destroying the enemy army and that the offensive and the use of maneuver were the appropriate tools.[27] The quandary for post-World War I Germany was how to accomplish this goal without the expandable cadre army and large reserve that had been critical to the doctrine of Moltke and Schlieffen. Seekt saw the answer in his experiences on the eastern front during World War I. He had observed well-led, well-trained, well-equipped German forces consistently defeat enemy forces of greater size. For Seekt, mobility was the key.[28] He envisioned mobile armies working in concert with aircraft attacking before the enemy could mobilize a mass army. Critical to this vision was imaginative and innovative leadership at all levels, capable of performing at higher levels if required. Seekt realized the Allies were not going to allow him to build his highly mobile, elite professional army. He therefore focused on developing leaders so the German Army would be ready when rearmament began. Under his guidance, the Army would become a "leaders" Army, with every officer, NCO, and soldier trained and ready to perform at the next level.[29] The 1930's rearmament added the equipment needed for the mobile units these officers and soldiers were to lead. Germany would overcome the lack of a Moltkean mass army by using technology and leadership to offset the manpower disadvantage.

Some of Seekt's contemporaries did not share his enthusiasm for the "leaders" army concept. Seekt's plan was to retain as many General Staff officers as possible. The alternative, proposed by several others including Reinhardt, the Army Chief, gave preference to front officers,

many of whom were war-time commissionees, in return for their service during the war. Seekt argued the education General Staff officers had in army organization and higher command planning was indispensable.[30] Seekt prevailed and, with a disproportionate number of General Staff officers retained, the German Army had the beginnings of the cadre army.

Seekt succeeded in making the commissioning requirements for the German officer corps as tough as in any army at that time. With a limit of 4,000 officers under the Treaty of Versailles, the Germans could afford to be selective. Officers had to display a combination of intelligence, physical fitness and moral character throughout the tortuous four-year process from enlistment to commissioning.[31] The commissioning process in the German Army produced a highly capable, select group of junior officers. From this group would emerge the division and corps commanders of World War II. The more intellectually exceptional officers would become General Staff candidates.

The provisions of the Versailles Treaty had disbanded the General Staff in 1919. The General Staff disappeared as a separate branch, but its functions were transferred to other departments. The *Truppenamt*, under Seekt, maintained many of these duties. The German military leadership was determined to keep the spirit of the General Staff alive.[32] The *Kriegsakademie* was also dissolved in accordance with the treaty. This required that Seekt find other ways of educating the future planners of the German Army. The solution would be the old system modified to comply with the provisions of the Treaty of Versailles.

Prior to World War I, officers were not required to complete any examinations after receiving their commissions; only those officers showing exceptional ability were considered for selection to the General Staff corps. These officers then volunteered to take the Military District Examination, the General Staff corps entrance exam. Seekt decided to make the examination

mandatory for all officers.[33] He felt this would provide "a useful overview of the level of military knowledge and general education in the officer corps."[34]

The examination included papers on applied tactics, theoretical tactics, military engineering, map reading, and weaponry. It was administered to junior officers at the headquarters of the seven military districts. Officers not making satisfactory marks could take the test the next year, but more than one failure on the test could result in the loss of commission. Commanders of the districts were responsible for ensuring their officers were prepared for the examinations. Time was allocated for preparation, a correspondence course was available, and officers formed study groups as the test approached.[35]

James Corum, in The Roots of Blitzkrieg, cites three results of Seekt's decision to administer the test to all officers in the *Reichswehr*: (1) an additional hurdle was placed before less-educated officers, (2) all *Reichswehr* junior officers were forced into an intensive study program, and (3) the entire post-war officer corps became a recruitment pool for the General Staff corps.[36] Seekt's concept of a leaders army required intelligent officers capable of either forming the cadres of a mobilizing mass army or leading the small mobile strike army composed of active duty soldiers. Education was critical to developing these leaders.

The next level in this education process was the General Staff training. The officers scoring in the top ten to fifteen percent on the district examination were selected to attend General Staff training. Under the provisions of the Treaty of Versailles, the *Kriegsakademie* and formal General Staff training had been outlawed. The Germans eluded these provisions by decentralizing the instruction for these "leader's assistants," as the General Staff candidates were now called. Seekt developed a four-year program combining three years of course work with one year of practical experience with troops. The first two years of academic instruction were held in

the military districts and included classroom instruction and staff rides in the Moltkean tradition. During the summer, the officer would serve in a branch of service other than his own. The third year brought an assignment with troops as a division staff trainee. The final year was spent in Berlin with intensive instruction under the tutelage of the high command. Of the thirty or so officers that began the four-year program, as few as ten would attend the final year in Berlin.[37]

Seekt placed special emphasis on selecting the best officers available to serve as instructors. Experienced General Staff officers were assigned to teach in the districts and at Berlin. These senior leaders provided classroom instruction and served as mentors for the aspiring General Staff officers. The students were constantly observed to ensure the proper attributes were demonstrated. According to *Truppenamt* instructions, an officer accepted to the General Staff was to be "strong-willed, eager to take responsibility, calm under pressure and a troop leader."[38] At the completion of training exercises, instructors held seminars to review and discus the solutions developed by the students. Grading was subjective as the Germans believed each problem had various acceptable solutions. The student solutions were evaluated on their own merits and no 'school solutions' were presented by the instructors.[39]

The search for the key to the German Army's success in World War II, especially that in the early campaigns, has spawned diverse opinions among historians. Much of the credit has gone to the General Staff and the system of education that produced it. The focus on intellectual development created a corps of officers able to apply innovation and creativity to the problems they faced. Credit for the success goes to the use of examinations to ensure only the most capable officers were offered admission, the small class size, and to the presentation of the instruction over several years. A depth and breadth of study was provided, resulting in high levels

of cognitive development in the students, cognitive development that would be critical to the leaders of the fast-paced, mobile warfare of 1941-42.

Comparisons between the German and US schools are natural. Albert C. Wedemeyer, honor graduate of the 1936 Leavenworth course, had the opportunity to attend both. He was critical of his experiences at Leavenworth and found, in the German course, more emphasis on strategic matters and the modern conditions of warfare.[40] Corum, in The Roots of Blitzkrieg, draws his comparison based on the use of "school solutions" at Leavenworth contrasted with the focus on encouraging innovation at the *Kriegsakademie*.[41] Russell Weigley attributes "unimaginative caution" to American generals in Europe during World War II. He finds that these men were competent but "addicted to playing it safe." Playing it safe may have been appropriate for the US Army in 1944-45. The US enjoyed a distinct materiel advantage over the Germans which meant that the *Wehrmacht* would sooner or later be overwhelmed by the sheer weight and numbers of the allied forces. Weigley wonders whether, with a little imaginative generalship, the war could have been concluded sooner rather than later, saving countless lives on both sides.[42] The unimaginative generalship of the World War II generals undoubtedly resulted from various factors. One shared experience of these men was CGSC. It is fair to say that an opportunity to imbue conceptual leadership skills was lost as a result of a CGSC curriculum that failed to encourage imagination or innovation.

Attributes of Conceptual Leadership

The Force XXI debate is raging among professionals both within and outside the US military. While much of the focus of this debate centers on technology and its effects on doctrine and capabilities, various authors have concentrated on officer education and the needs of the

future leader. A discussion of several ideas presented by these authors will provide some of the attributes they feel are necessary for the future planner. A subsequent look at Army policy for leader development, as described in DA Pam 600-32, Leader Development for the Total Army and DA Pam 600-80, Executive Leadership, will provide insight to the attributes necessary according to the current doctrine.

Retired General Frederic J. Brown, in his book The US Army in Transition II, makes a case for redefining the blue-collar - white-collar labor paradigm. His categories of iron (computers and robotics), blue (disciplined execution of assigned tasks), white (leading in the accomplishment of missions within a single combat function), and gold-collar (integration of the above in rapidly changing situations) requirements seem an appropriate method for describing the functions in the future military.[43] Using his categories, "gold-collar" functions are those the Army expects field grade officers to perform. Integration of battlefield effects across combat functions is a what division and corps staff officers do. The increased complexity of future battlefields leads Brown to categorize these tasks differently. He describes "gold-collar" as

> the capability to accomplish innovative tasks that achieve tenfold to hundredfold increases in capability. They include the imaginative identification of new 'solutions,' exploiting existing capabilities as they have never been combined before, or conceptualizing and actualizing. . . new ways to fight.[44]

Brown goes on to describe the transition to "gold-collar" functions as evolutionary, as war itself evolves through increases in capability. The new complexity requires officers specializing in planning and integrating complex operations. In terms of developing this specialization, General Brown agrees the Army must keep a warfighting focus. His description of "school learning" as "passive learning experiences" is appropriate. He challenges the Army to make leader development more "active," by incorporating the benefits of the CTCs into the developmental process.[45] In other words, he recommends using simulations technology to create learning

environments requiring the student to plan and operate under the stresses of combat. Only in this type of environment will the student develop the 'gold-collar' attributes of innovation and imagination.

Incorporating simulations technology into leader development programs is a common theme. In Seeing the Elephant: Change and America's Army, former Chief of Staff Gordon Sullivan and Anthony Coroalles point out that

> we are now for the first time in our history developing the capability to simulate future battlefield conditions. Through the use of sophisticated simulations we can design a unit of the future. We can equip this unit and its opposing force with new weapons and organize them in any fashion that we wish. Future leaders can employ these units in simulations and gain insights with which to supplement those gained from historical case studies.[46]

Technologies like Janus and CBS/BBS will not only create the realities of combat in the classroom, they also provide opportunities for students to experiment with and help develop new doctrine and equipment. In a discussion of the future environment, Sullivan and Coroalles warn that "the payoff will go to organizations which are versatile, flexible, and strategically agile, and to leaders who are bold, creative, innovative, and inventive."[47] These attributes represent another common theme among those writing about the needs of the future Army.

With regard to current Army doctrine for leader development, DA Pam 600-32, Leader Development for the Total Army, describes the leader development process in basic terms. This pamphlet describes the pillars of leader development (institutional training, operational assignments, and self-development) and the process itself, which includes a continuous sequence of education, training, experience, assessment, feedback, and remediation/reinforcement.[48] This pamphlet describes the process of leader development; specific attributes for the leaders it develops are not described.[49]

DA Pam 600-80, Executive Leadership, addresses more specifically the likely demands on future planners. The three broad areas of leader skills are defined as technical, interpersonal, and conceptual.[50] Technical skills involve solving problems and performing tasks and missions. Interpersonal skills involve communicating ideas and instructions to others. Conceptual skills are used to make sense of information gathered from external or internal sources in order to provide interpretations to others. It is in the area of conceptual skills that leaders in the future complex environment will have to be especially adept.

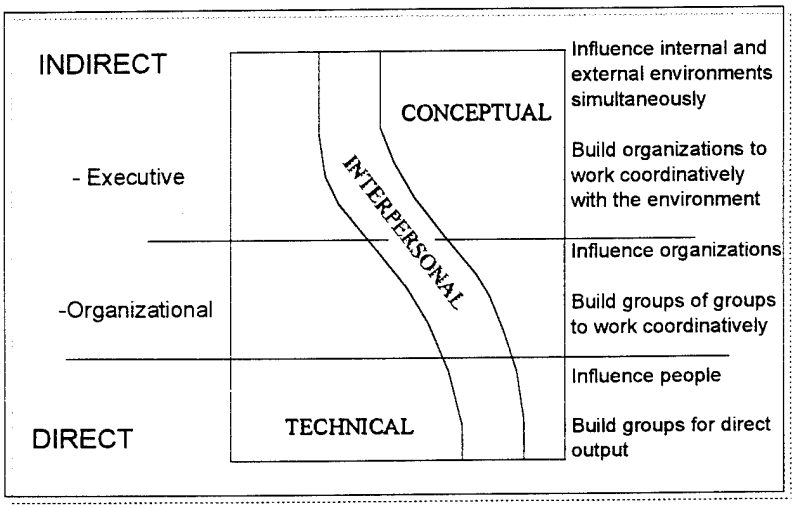


Figure 1: Leadership Skills
Source: DA Pam 600-80, Executive Leadership

In Striking a Balance in Leader Development: A Case for Conceptual Competence, Colonel Emil K. Kluever, et al. argue that the execution of leader development doctrine accounts for the technical and interpersonal skills, but falls short in developing conceptual competence.[51] They go on to assert that conceptual competence must be developed early in an officer's career; waiting until the officer is given command of a high-level organization is too late.[52] As defined earlier, conceptual skills are "cognitive skills necessary to understand the total organization, guide its progress, and place it properly within the context of the larger society." The attributes associated with conceptual skills are systems understanding, envisioning/anticipating, proactive reasoning, scanning, problem formulation, reflective thought, and critical self-evaluation.[53] A detailed description of these attributes appears in appendix A.

Cognitive skills can be categorized in many different ways. Benjamin S. Bloom's taxonomy of educational objectives in the cognitive domain is the most commonly used method of describing the categories.[54] Bloom developed a hierarchy of cognitive ability that included six classes: knowledge, comprehension, application, analysis, synthesis and evaluation.[55] These classes of educational behaviors cover the range from low to high levels of complexity. In other words, problems requiring synthesis are more difficult than those requiring comprehension. A detailed description of the cognitive levels appears in appendix B.

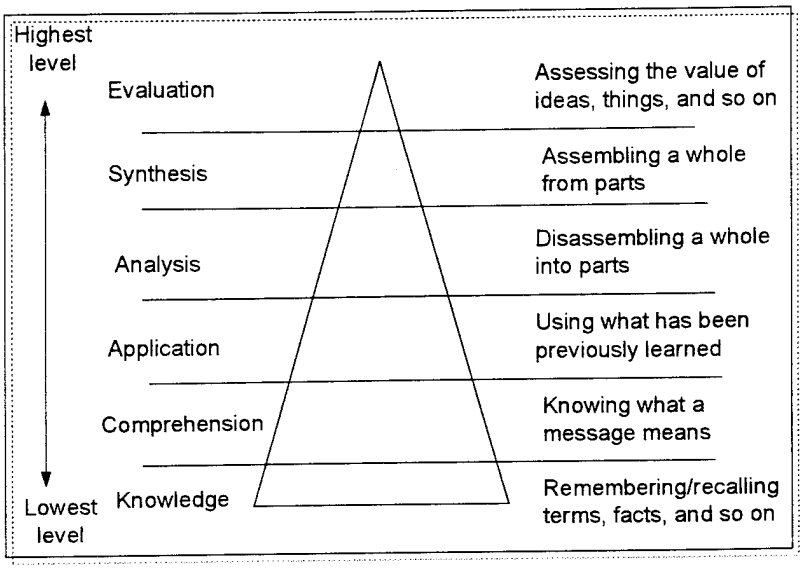


Figure 2: Bloom's Taxonomy
Source: Rothwell, 132

Kluever, et al., states that "conceptual competence is more likely to develop if curricula are at the analysis, synthesis, and evaluation levels"[56] The synthesis level is characterized by **divergent** problems as opposed to **convergent** problems. E. F. Schumacher, a British economist, defines convergent problems as those with correct technical solutions; "the more intelligently you study them, the more the answers converge." Divergent problems defy technical solutions; they have no correct solutions and "the more they are studied, the more answers contradict each other."[57] The complex battlefield of the future will likely contain more divergent problems than convergent problems. The future planner needs high-level cognitive skills to manage problems effectively.

Summary

A comparison of the German and American approach to intermediate officer education during the interwar period provides insight into how these nations educated the leadership for World War II. The Germans took a broader approach, choosing to educate fewer officers over a longer period to a greater depth of understanding. Seekt designed the system to provide the officers he felt were critical to his concept of an elite, mobile force. The leaders had to be innovative and creative to fight outnumbered and win on the future battlefield. The US chose to educate more officers with a focus toward technical and tactical expertise, and the ability to apply the concepts of doctrine. The desire to provide trained officers in the field led to a curriculum focused on basic application of emerging doctrine.

The attributes necessary for future planners include innovation, creativity, and imagination. Conceptual skills and a high level of cognitive development will be critical to the complex problem-solving inherent in that environment. General Brown and General Sullivan advise to look to simulations to provide opportunities in training to replicate the complexity and ambiguity of the battlefield, thus enhancing the development of innovative and imaginative solutions. Finally, the Army must develop more than application skills at the intermediate level. The future officer must be able to **synthesize** unrelated facts and information so as to form a coherent plan of action in a confusing and ambiguous environment.

CGSOC, the intermediate education experience for Army officers, provides an opportunity to begin the development of these conceptual skills. The next section will assess the effects of the CGSOC core tactics curriculum on the development of conceptual competence.

II. Tactics Instruction at CGSOC

CGSOC plays an important role in the Army's leader development process. It is the first institutional education opportunity for field grade officers and, for most of these officers, the last as well. The Military Education Policy Document identifies CGSOC as the professional military education (PME) institution at the intermediate level.[58] The intermediate level involves education typically received as a major and is the third of five educational phases in an officer's career. The transition to the intermediate level from the previous level involves a new focus on "large unit warfighting within the context of operational art" and development of the officer's "analytic capabilities and creative thought processes."[59] Many officers attend CGSOC after an operational assignment at the intermediate level. For these officers, CGSOC is an opportunity to hone their skills and gain perspective on their experiences. The majority of officers attending CGSOC do so prior to an assignment at the intermediate level. CGSOC has to fulfill the institutional education responsibility of preparing these officers for their subsequent intermediate assignments.

Before embarking on a discussion of the tactics curriculum, a discussion of the staff group composition is necessary. The appropriateness of the methods of instruction cannot be determined without an understanding of the expertise level of the students. These "learner-related characteristics" fall into four general categories: physical traits, previously learned skills, previously learned knowledge, and previously learned attitudes.[60] Previously learned skills and knowledge are especially important to the tactics student.

A typical CGSOC staff group has 6-7 combat arms officers (armor, infantry, field artillery, engineer, aviation, special forces, air defense artillery), 2-3 combat support officers (military intelligence, signal, military police, chemical corps), 2-3 combat service support officers (adjutant

general, finance, transportation, ordnance, quartermaster), 1-2 sister service officers (navy, air force, marines), one special or medical branch officer (JAG, chaplain, medical, dental, veterinary, nurse, medical specialist, medical service), one reserve component officer, and one international student. The average size is 16 officers.[61]

The mixture is based on CGSOC class demographics and results from attempts by the college to balance the assignment experience in each staff group. For the CGSOC tactics instructor, this means almost half the students will have little or no experience with US tactical decisionmaking doctrine. Of the students with experience, few will have spent much time above brigade level.[62]

The core tactics curriculum is the primary focus of CGSOC during the fall term. In the twenty weeks from August through December, students spend eleven weeks studying tactics.[63] Four weeks are spent in C310, The Fundamentals of Combat Operations. C310 is the "foundation for all combined arms instruction within the resident Command and General Staff Officer Course."[64] The focus of C310 is the basics of tactical warfighting. Students explore US Army doctrine and become familiar with the tactics, techniques, and procedures for conducting combat operations at the tactical level of war. The tactical decisionmaking process is introduced and students, acting as the key members of a brigade staff, apply the process to plan several brigade operations. The last of these brigade operations corresponds to a practicum using the Janus simulation system.

The remaining seven weeks are spent in C320, Corps and Division Combat Operations. C320 is designed to "develop a comprehensive understanding of corps and division combat operations." C320 requires the application of tactics fundamentals taught in C310, the fundamentals of operational and strategic logistics taught in C410, the fundamentals of joint and

combined operations taught in C510, and fundamentals of senior leadership taught in C710.[65] Practical exercises include developing a heavy corps and division plan in Europe and an airborne corps plan in Latin America.

The learning objectives and outcomes for C310 and C320 will be evaluated here according to the cognitive complexity level required to achieve the standards established for each. An assessment of the terminal learning objectives (TLOs) for C310 and C320 will help to determine both the cognitive level of the courses and the attributes the courses are designed to develop. Bloom's taxonomy of educational objectives in the cognitive domain provides the tool for this evaluation. A complete description of the terminal learning objectives appears at appendix B. The three TLOs for C310 are:

A - Analyze United States Army operations doctrine
B - Explain the structure and missions of logistics organizations at the tactical level of war
C - Plan combined arms operations at the tactical level of war [66]

The standard for "Analysis of US Army operations doctrine" (Objective A, C310) requires the student to "explain" the interrelationships between elements of the doctrinal framework for Army operations. These elements include the levels of war, the principles of war and tenets of Army operations, components of combat power, and doctrine for offensive, defensive, and retrograde operations. The student is also required to "explain" how air support is synchronized with ground operations and "compare" how corps, divisions, and brigades use logistics to sustain combat operations.[67] The use of the verb **compare** in the performance standards places this objective at the **analysis** level of the cognitive domain, requiring the student to "break down knowledge into parts and whole relationships"[68] (See Appendix C). The verb **explain** would indicate the **comprehension** level. In this case, explaining "interrelationships" means to **differentiate** or **distinguish** which are verbs used at the **analysis** level.[69] The standard for "Explain the structure

and missions of logistics organizations" (Objective B, C310) requires the student to **identify** logistic units and **determine** their capabilities.[70] The verb **identify** indicates the **comprehension** level. "Determine" means to **identify** or **recognize** which are verbs used at the **comprehension** level as well.[71]

The standard for "Plan combined arms operations at the tactical level of war" (Objective C, C310) requires the student to "prepare" a feasible solution, "employ" forces to effectively synchronize the battlefield operating systems, "integrate" units performing logistics functions, and "employ" terminology and symbology.[72] The verbs **prepare** and **employ** place this objective at the **application** level of the cognitive domain, requiring the student to "apply knowledge or generalize it to a new situation. "Integrate" means to **assemble** which indicates the **synthesis** level.[73] The verb **plan** from the TLO is appropriate for the **synthesis** level as well. Synthesis requires the student to "bring together parts of knowledge to form a whole and build relationships for new solutions"[74] According to the USMA Department of Behavioral Science and Leadership, **synthesis** requires the student to "put together previously unrelated elements or parts . . . so as to form a new whole."[75] It is arguable whether the tactical problems presented in C310 require the students to synthesize. The students are more likely applying the examples of orders from lectures and the course texts to arrive at their solution. Additionally, this objective is not accomplished by each student, but by the group as a whole. Most students apply what they have learned to prepare a portion of the plan based on specific guidance from the commander or XO/S3. The responsibility for the organization of these parts into a plan falls to the XO and S3, or to the commander if that role is assumed by a student. **Synthesis**, if it occurs, is accomplished by only a few students in each group. The C310 final exam does not require individual students to prepare a complete order nor even wargame a course of action. During the practical exercise,

a few students perform these for the group; this objective is never evaluated individually.

The final lesson in C310 is a practicum on the Janus system. Students plan a brigade operation with appropriate graphic products. The group fights the operation on Janus with students playing the key roles in the command and control of the brigade. This is great opportunity for the students to experience the complexity and friction inherent in a combat operation.

C310 is designed to teach the basics of warfighting. The lack of understanding and experience with tactics among many of the students requires an introductory course to establish a baseline. C310 is not designed to develop high-level cognitive skills. The goal of developing expertise at the **comprehension**, **application**, and **analysis** levels is appropriate for a "fundamentals" course. The "fundamentals" course, however, may not be appropriate for all students.

C320 is designed to provide an opportunity for students to apply the concepts learned in the various courses presented during the first part of term I.[76] A complete description of the terminal learning objectives appears at appendix B. The three TLOs for C320 are:

A - Plan division and corps combat operations in a joint and combined environment
B - Prepare a commander-in-chief's strategic and operational assessment of his environment
C - Apply the fundamentals of joint operational planning at the strategic and operational levels

The standard for "Plan division and corps combat operations in a joint and combined environment" (Objective A, C320) requires the student plan an operation in accordance with doctrine and the deliberate decisionmaking process.[77] As discussed earlier, the verb **plan** corresponds to the **synthesis** level of the cognitive domain.[78] In C320, as in C310, not all students are required to show competence at this level. The parts of the plan are prepared by the

staff using **application**. **Synthesis**, if it occurs, is accomplished by the S3, XO, or commander as they put the plan together.

The standard for "Prepare a commander-in-chief's strategic and operational assessment of his environment" (Objective B, C320) requires the student to "assess" an area of responsibility based on the national interests of the US, allies, and threat nations; theater objectives; the CINC's strategic concept; and the methods appropriate to achieving the theater objectives.[79] The verb **assess** corresponds to the **evaluation** level of the cognitive domain, requiring the student to "make judgments on [the] basis of given criteria."[80] **Evaluation** is at the top of the taxonomy due to the requirement to use other levels of cognitive abilities to some extent.[81] **Evaluation** does not necessarily connote high-level cognitive skills. Students will "evaluate" materials throughout the learning process, from the knowledge level through the synthesis level, in some cases as a prelude to movement to a higher level. In this case, C320 students "assess" what they have learned **(comprehension)** about the CINC's environment in preparation for the **application** of the information to a problem. High-level cognitive **evaluation** can only be performed by a student with high-level cognitive skills (**synthesis** or **analysis**).[82]

The standard for "Apply the fundamentals of joint operational planning at the strategic and operational levels" (Objective C, C320) requires the student to "explain" the organization and function of a joint task force, "develop" the strategic and/or operational concept of operations, and "incorporate" the use of service components and functional assets into the plan.[83] The verb **apply** corresponds to the **application** level of cognitive ability. **Explain** corresponds to the **comprehension** level. "Develop" and "incorporate" mean to **create** and **assemble** which indicate the **synthesis** level.[84]

Based on this analysis, the CGSOC core tactics curriculum is taught at the **application** and **analysis** levels. New knowledge sets are presented, student comprehension is evaluated, and these concepts are then applied using practical exercises and examinations. **Analysis** and **synthesis** are required for practical exercises completed by the group. Creativity and innovation are not discouraged but neither are they required or developed. The student officer emerging from C310/C320 has demonstrated the ability to "apply" concepts to specific scenarios. Whether individual students can synthesize concepts for completely new and unfamiliar situations is questionable since no requirement to individually demonstrate this ability is required in the curriculum. Proficiency in **application** is all that is needed or demanded of the individual students.

A discussion of perceptions held by a former senior brigade trainer at the National Training Center will help determine the effectiveness of the instruction. LTC John D. Rosenberger, in The Burden Our Soldiers Bear, states that most of the staff officers he has observed during twelve rotations and 100 battles are unable to properly integrate the effects available to a brigade battle task force. Significant blame is placed on an inability to wargame properly.[85] Units attack piecemeal, artillery lands at the wrong time, and air is not coordinated with other fires. IPB, reconnaissance efforts, and maneuver are not integrated to achieve maximum unity of effort.

These problems, according to Rosenberger, stem from an inability to orchestrate activities in time and space, to visualize the battle and identify the possibilities. Synchronization is a complex task that requires the ability to arrange the capabilities of the organization, creating a relative combat power advantage over the enemy at the point of decision. FM 100-5, Operations, states that synchronization

> implies judgment in choosing among simultaneous and sequential activities. . . To achieve this requires the anticipation that comes with thinking in depth, mastery of time-space-purpose relationships, and a complete understanding of the ways in which friendly and enemy capabilities interact.[86]

Effective synchronization requires cognitive skills at the **synthesis** level of Bloom's hierarchy. Students synchronize brigade operations in C310, division and corps operations in C320. The synchronization exercises are performed by the staff group. Students are never required to demonstrate proficiency individually. Only during the brigade practicum in C310 is staff group synchronization evaluated through execution of the plan.

Summary

Of the six terminal learning objectives (TLO) for C310 and C320, one is at the comprehension level, one at the application level, one at the analysis level, two at the synthesis level, and one at the evaluation level. As discussed earlier, an objective at the evaluation level means only that students will evaluate the material based on the cognitive level they have attained. This does not indicate high levels of cognitive development. The two TLOs at the synthesis level are the planning objectives which require a few students to perform the synthesis while the rest apply what they have learned to their portions of the order. The planning objectives are never evaluated individually either in class or on the examinations.

Terminal Learning Objectives
C310 and C320

Knowledge	Comprehension	Application
	Objective B, C310	Objective C, C320
Analysis	**Synthesis**	**Evaluation**
Objective A, C310	Objective C, C310 Objective A, C320	Objective B, C320

Figure 3: Cognitive Level of Tactics Learning Objectives

COL Rosenberger asserts that many field grade combat arms officers suffer an inability to effectively synchronize combat operations. He observed officers struggle with the fast-paced

confusion of NTC. The opportunities to practice synchronization during the core tactics curriculum are limited to several practical exercises conducted by the group. The Janus exercise provides the only opportunity to evaluate synchronization through the execution of a plan.

The staff group composition is designed to facilitate the sharing of experiences among the students. The diverse backgrounds lend themselves to the small group environment and experiential learning. The tactics small groups have a wide range of tactical experience from little or no experience among the special branch officers to high levels of experience among some combat arms officers. The wide range of experience makes the fundamentals course a positive experience for those with little experience. They benefit from the instructors' experience as well as from experienced students. The experienced students hone existing skills and act as assistant instructors for the benefit of other students. The opportunities for students of either group to develop high-level tactical skills are few.

III. Comparison of the Findings and Recommendations

One of the conclusions from part I of this monograph was that future planners need to develop conceptual skills like those inherent in executive leadership. The ability to bring these skills to bear on complex problems will enhance the performance of planners and their units. CGSOC tactics instruction currently focuses primarily on application of the doctrinal decisionmaking process. Cognitive skills at the **synthesis** level, necessary for solving divergent problems, are not developed to the extent they could be during the core tactics instruction. As Kluever, et al. point out, "efforts to develop conceptual competence must begin early in an officer's career."[87] The CGSOC tactics curriculum provides an opportunity for the development of **synthesis** skills.

The ability to effectively synchronize combat operations is an indicator of attainment of the synthesis level of cognitive development. The officer that can bring together the disparate parts of an organization to form a viable plan of action in time and space is functioning at the synthesis level. A student demonstrating the ability to do this task individually will likely perform effectively as a member of a staff conducting synchronization of a unit in the field. This should be an objective for the tactics instruction at CGSOC.

Courses of Action

Three courses of action (COAs) will be discussed that close these gaps. COA 1 (All Students) maintains the current organization of staff groups with a curriculum change requiring all students to attain the synthesis level. The change involves a rewrite of the course objectives to focus on synthesis of the material with a requirement for all students to individually demonstrate

the ability to synchronize and plan operations. COA 1 would require more individual work to ensure each student attained the standards

COA 2 (Stratified Groups) involves identifying students with the ability to function at the application level in tactics upon arrival at CGSOC. An examination administered during in-processing would determine the cognitive level of each student. Once evaluated, the students would be organized by ability into tactics staff groups. Officers at the application level or better would embark on a curriculum designed to develop tactical skill at the synthesis level. The time previously spent on fundamentals could be drastically shortened to allow for more focused study on the complexities of tactics and ambiguous environments the students will likely encounter. Students arriving with skills at the knowledge or comprehension level in tactics would study a curriculum similar to the current core tactics instruction. COA 2 accepts the notion that not all students need to understand tactics at the synthesis level.

COA 3 (Ability Integration) combines COA 1 and 2. Students would be organized by ability for the classroom instruction with practical exercises administered to a balanced group including officers from each tactics staff group. Students from the advanced groups would hold the key staff positions and synthesize the efforts of the staff to produce the plan. The experience of the advanced students would benefit those without the experience in a fashion currently provided by the present staff group organization. Advanced students would likewise benefit from classroom instruction designed to enhance their conceptual capabilities.

Course of Action Analysis

The three COAs will be analyzed according to the following criteria:

Educational opportunity based on ability and experience. Are the students provided a curriculum that best matches their abilities in both tactics and conceptual capability?

Balance of experience in the small groups. Learning in the seminar group is enhanced when students bring a wide range of experience to the classroom. Students with little or no experience in a subject area gain insight through the experiences of other more knowledgeable students.

Availability of qualified instructors. Attempts to develop conceptual skills is dependent on the availability of instructors capable of educating at the synthesis level. The burden of developing high-level cognitive skills in available instructors must be considered.

Effective use of simulations. The availability of simulations is limited at CGSC. This resource must be prioritized and allocated to students who gain most from exposure to this tool.

COA 1 (All Students) is designed to use the same curriculum for all students. It maintains the same structure as the current curriculum while using more challenging learning objectives. This will enhance the learning of students with experience in tactics and high cognitive skills. Those students with little experience in tactics will find the instruction inappropriate without extensive individual attention from the instructor. International officers without a firm grasp of English will find this instruction difficult as well. This will be mitigated by the balanced staff group approach. The wide range of experience in tactics and conceptual ability will provide assistant instructors to help students lacking in experience. This is similar to what happens in the current tactics seminars. One difference will be that experienced students will find themselves more challenged by the advance curriculum. They may be less likely to have time to peer teach in the classroom.

In COA 1, the challenges encountered by experienced students will be multiplied for the less experienced students. The challenge for the instructor will be to maintain the high standards of the learning objectives. The instructor will play a key role in conceptual skills development. Current tactics instructors may not be at the synthesis level required to teach the new curriculum. Special care would have to be taken to either select instructors capable of performing at the appropriate level of cognitive ability or develop cognitive skills in new instructors before allowing them to teach the enhanced curriculum. The use of simulations will not change in COA 1; all groups would get one Janus practicum.

COA 2 (Stratified Groups) would organize the students according to ability and experience. The stratification could be accomplished in several ways. The technique would need to account for experience and conceptual ability. A comprehensive examination designed to evaluate cognitive skills and tactical ability would be used to divide students into appropriate ability groups. Branch and functional area may also be considered to ensure combat arms officers in functional area 54 are included in the advanced group. Groups organized by ability would provide appropriate educational opportunities for all CGSOC students. The advanced group would develop to the synthesis level while the basic group would strive to perform at the application level. A third level may be formed for combat service support and special branch officers without experience in tactics. These officers would be required to achieve the comprehension level.

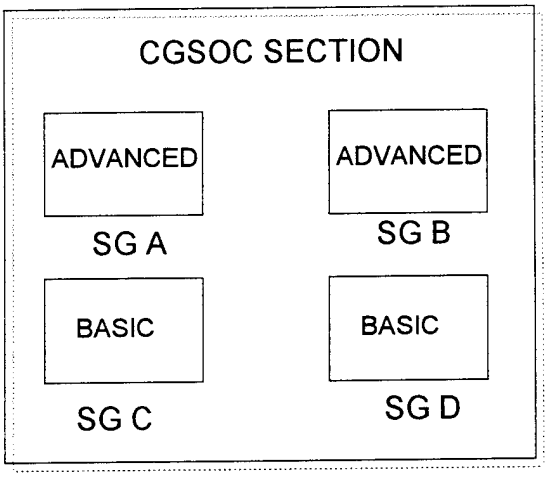


Figure 4: COA 2 (Stratified Groups)

COA 2 would achieve balance in the staff groups only within the ability levels. The current system of balance would be traded for opportunities to educate students according to ability. The stratified grouping could be instituted for tactics with overall balanced staff groups used for other courses in CGSOC. A system of separate staff groups for tactics and other courses would continue the positive aspects of the CGSC small group model without penalizing more capable students.

In terms of instructor availability, COA 2 would require identification of instructors with the experience and conceptual ability to teach the advanced groups. Officers with these qualifications are probably members of the faculty now. If an appropriate number cannot be found, an instructor development program would be necessary to prepare sufficient instructors to teach the advanced groups. The tactics department could use the preparation course in the future to develop all tactics instructors to high levels of cognitive and tactical skills regardless of the course they are to teach.

COA 2 would allow the college to give priority for the use of Janus to the advanced groups. Instead of each group conducting one Janus exercise, advanced students could be given multiple opportunities to execute their plans. Janus will provide timely feedback on the synchronization of a plan. Students learning synchronization and other **synthesis** level skills should have priority. Advanced groups would include the combat and combat support officers most likely to serve on brigade staffs. These students will gain the most from the simulation experience.

COA 3 (Ability Integration) is a combination of COAs 1 and 2. Stratified grouping would enable the education of students by ability during the classroom portion of the instruction. Students would regroup for practical exercises, combining students from the different ability groups into a staff with various experience levels. Basic-level students would gain from the experience and abilities of advanced students during the practical exercises while advanced students would benefit from focused education during the classroom instruction phase.

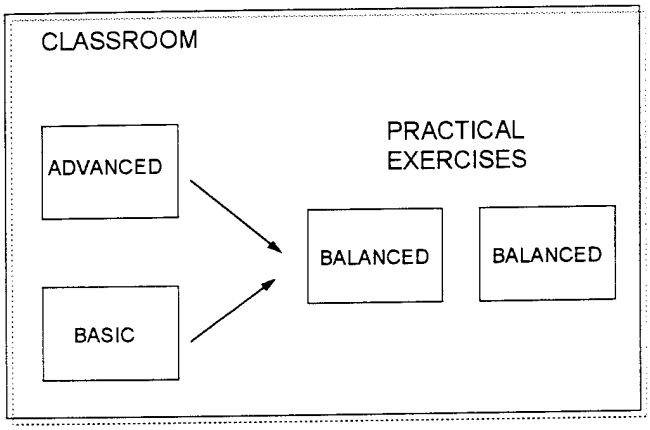


Figure 5: COA 3 (Ability Integration)

The objective would be development of synthesis skills in the advanced group while the basic group focused on the application level. As in COA 2, the current faculty should have instructors capable of teaching the stratified groups. An instructor development course would overcome any shortfalls. During practical exercises, a pair of instructors (one from the advanced, one from the basic courses of instruction) would share instructor duties for the combined balanced groups. The Janus exercise would be a practical exercise in which all students would be afforded one opportunity to fight a battle on the system.

Course of Action Comparison

A comparison of the courses of action is represented in Figure 6. Courses of action are rated across each criterion with the best solution receiving a one, the next best a two, and the least-preferred solution receiving a three. The lower the number, the better suited the course of action. COA 3 provides the best educational opportunity for CGSOC tactics students. It groups officers by ability to allow focused instruction appropriate to experience and cognitive ability while bringing students together in balanced groups to work practical exercises. COA 2 provides focused education according to ability, but no interaction between the groups is sought during the course; students in basic-level courses get no opportunity to benefit from the experiences of students at the advanced level. COA 1 requires all students to work to the same higher standard. Inherent student abilities are not considered.

Less is Better	COA 1	COA 2	COA 3
Educational Opportunity	3	2	1
Balance of Experience	1	3	2
Instructor Availability	3	1.5	1.5
Simulations	2.5	1	2.5
Total	9.5	7.5	7

Figure 6: COA Comparison

COA 1 provides the best balance of the wide-range of officer experience. The current system of using demographics as the basis for assignment is maintained. COA 3 balances experience within ability groups for classroom instruction and combines students for practical exercises to provide interaction across ability groups. COA 2 provides balance within ability groups and no interaction with members of other groups.

COAs 2 and 3 use available tactics instructors most effectively. The advanced groups require instructors capable of educating students at the synthesis level. An assessment of the current faculty will identify many officers with the experience and cognitive ability to accomplish this task. To require all tactics instructors to be at this level would be a goal for the future. Once the instructors for the advanced groups are identified, the remainder will be designated to instruct the basic groups. COA 1 would require the entire tactics faculty to be prepared to teach at the synthesis level. This could require extensive instructor development and is probably not feasible in the near term.

COA 2 uses available simulations most effectively. The advanced groups would conduct multiple practicums based on the number of advanced groups. The basic groups would get exposure to simulations during the capstone exercise in the Spring. COAs 1 and 3 allow each group to use Janus once, limiting the students with the most to gain from the experience.

As represented in figure 6, COA 3 provides the best educational opportunities and uses available instructors most effectively. COA 3 is not as effective as COA 1 in balancing experience in staff groups, but does do a better job than COA 2. Neither COA 3 or COA 1 use Janus as effectively as COA 2. Based on the evaluation criteria, Course of Action 3 (Ability Integration) is recommended.

Summary

Three courses of action have been presented to close the gap that exists between what tactics instruction at CGSOC should produce and its previous and current approaches. In order to group students by ability, CGSC will need to develop an examination designed to evaluate the cognitive ability and the tactical experience of CGSOC students. A student's score on the exam

would be used along with branch, experience, and functional area to determine the tactics level appropriate for the officer. It will be difficult to administer the exam during in-processing and have it graded in time to organize the groups before the start of the term. A test that could be administered at a student's previous duty station in the spring and mailed back to Leavenworth would allow the college to organize staff groups before arrival of students in August.

Consideration must be given to selection of instructors. There are certainly officers assigned to the faculty of CGSC with the necessary traits to teach tactics at the synthesis level. Qualified instructors should be recruited throughout Fort Leavenworth. Once identified, these officers should play a role in the development of the advanced curriculum. Senior Service College students and the faculty of the School of Advanced Military Studies may provide expertise in the development of the curriculum as well. COL John A. Spears, director of the Center for Army Leadership and co-author of Striking a Balance in Leader Development: A Case for Conceptual Competence with Kluever, et al., should also be consulted.

IV. Conclusions

As the United States moves toward the next century, more question than answers appear along the way. Who is the enemy and where will it threaten? What weapons will it use and what weapons are needed for its defeat? Many of these questions will only be answered as soldiers begin deploying to isolated locales for conflicts they did not expect. The only way to prepare for the inevitable confusion and uncertainty is to develop versatility in soldiers and their leaders. US Army doctrine identifies versatility as a tenet of Army operations. For units to be versatile, leaders must be prepared for the ambiguities and confusion that will be inherent in the future conflicts. To function effectively in the future environment, leaders will be required to solve divergent problems based on incomplete information with an eye on their solutions' potential second-order effects. In other words, officers need conceptual leadership skills.

The Command and General Staff Officers Course provides the opportunity to develop conceptual skills in field grade officers. It is an opportunity that should not be missed. It is the position of many historians that, prior to World War II, students at Fort Leavenworth were not prepared as effectively as their counterparts at the German *Kriegsakademie*. The US military cannot afford to be unprepared in the future. The lessons from pre-World War II Germany include recognition of the need to focus on officer education, thereby developing high-levels of cognitive ability through comprehensive instruction and high academic standards. CGSOC must work to make this level of education available to its students.

This monograph has assessed the current CGSOC tactics curriculum and found it too focused on application. The difficulties of rotational units at the NTC were traced back to a lack of conceptual skills and cognitive ability in field grade officers. Planners and decision-makers

need cognitive skills at the synthesis level. The current instruction provides some development of synthesis skills, but not enough. Three courses of action were presented, each designed to close the gap in conceptual development. The recommended course of action organizes the students according to ability and experience. Each student, regardless of ability, receives a focused and challenging classroom experience. Interaction across ability groups occurs during practical exercises, providing opportunities for students from different levels to solve tactical problems together. This will enhance the cognitive development of all students at CGSOC.

Appendix A

Attributes Associated with Conceptual Skills[88]

Systems Understanding - This is the capacity to visualize the interactive dynamics of the total system so that decisions taken in one area will not have unanticipated adverse impacts in another. Leaders realize the components of their systems operate interdependently within a total system and that actions taken by, or acting upon, one component have implications for the other components. The leader must maintain the capacity to deal with current requirements, conceive future requirements, and balance these requirements in the resource base.

Envisioning/Anticipating - This involves dealing with extremely long time horizons and envisioning feasible futures. A leader's frame of reference must be broad enough to predict and consider the indirect, second-order effects of any change. Without this capacity, changes in policy, regulation, or action may produce other changes that were neither anticipated nor desired.

Proactive Reasoning - Leaders must be able to analyze current and future issues in light of their potential effects on the organization's required capabilities. They anticipate the future, envision a desired future state, and then actively influence the environment to direct the flow of events toward the future goal, rather than waiting for them to develop and then reacting to their existence.

Scanning - Leaders often encounter issues without sufficient information to formulate a solution. They must be able to search purposefully for information, distinguish relevant from the irrelevant, and quickly reevaluate courses of action when new information emerges. This involves knowing where to look for the information and how to filter out what is useful.

Problem Formulation - Problems seldom appear with question marks at the end. They are presented as a set of facts, some favorable and some unfavorable. Many of the facts may not be facts at all, merely assumptions. Leaders must be able to formulate problems for the organization in terms that allow the development of alternative solutions. To do this, leaders must accommodate paradoxical or contradictory views of issues that have no right answer. They must tolerate ambiguity and uncertainty, focus on underlying causes of a problem, analyze cause-and-effect relationships, look for similarities among existing problems, and formulate a general approach toward solution.

Reflective Thought - Leaders must remain open and flexible to create new frames of reference to aid situational understanding and to see problems from differing perspectives. This is done by taking time to think through cause and effect, long-term implications, and overarching principles.

Critical Self-Evaluation - This involves analyzing past performance in terms of how it could have been better accomplished and determining why the objective was not achieved. The leader must disregard old problem-solving techniques as the nature of the work changes at the next highest level.

Appendix B

Terminal Learning Objectives

C310[89]

A. TASK: Analyze United States Army operations doctrine.

CONDITION: Given an oral or a written requirement and a case study or situation.

STANDARD: The analysis must -

- Explain the interrelationships of the three levels of modern warfare; define and explain the interrelationships of the components of combat power; explain the relationship between the principles of war and the tenets of Army operations and the relationship between the battlefield framework and the battlefield operating systems; and explain the general doctrine for offensive, defensive, and retrograde operations IAW FM 71-100, FM 100-5, FM 100-15.
- Explain how Air Force support is synchronized with Army ground operations IAW FM 90-20, FM 90-28, and FM 100-103.
- Explain and compare the tactical logistics functions that support tactical- and operational-level offensive, defensive, and retrograde operations IAW FM 100-5.
- Relate how corps, divisions, and brigades conduct and sustain combat operations IAW FM 71-2, FM 71-3, FM 71-100, FM 100-15, and ST 63-1.

B. TASK: Explain the structure and missions of logistics organizations at the tactical level of war.

CONDITION: Without references, given a situation and an oral or a written requirement.

STANDARD: The explanation must -

- Identify those company-sized units that exist in the heavy division support command.
- Identify those units that normally operate in the corps support group (forward) that is in support of a division sector.
- Differentiate between the composition and missions of the corps support group (forward) and the corps support group (rear)
- Determine the capability of combat service support units at the tactical level of war.
- Be IAW FM 100-5, ST 63-1, and ST 101-6.

C. TASK: Plan combined arms operations at the tactical level of war.

CONDITION: Acting as a staff officer of a heavy brigade, given the higher headquarters plans and higher commander's intents; appropriate references; data bases for terrain and weather; friendly and enemy statuses, locations, and movements; and an oral or a written requirement.

STANDARD: The plan must -

- Offer a solution that is feasible with respect to the mission, enemy, troops, terrain and weather, and time available.
- Employ forces, including combat air power, to effectively synchronize the battlefield operating systems according to the guidelines summarized in FM 71-3, FB030, FB040, formal classroom instruction, and the C310 Advance Book.
- Integrate the actions of direct and general support units, management centers, and command and control headquarters responsible for the execution of the tactical logistics functions IAW FM 100-5, ST 63-1, and ST 101-6.
- Be developed IAW the procedures described in ST 101-5.
- Employ conventional military terminology and symbology outlined in FM 101-5-1, and PT 100-1.
- Be communicated effectively IAW the writing and briefing techniques described in ST 22-2 and the formats outlined in ST 101-5.

C320[90]

A. TASK: Plan division and corps combat operations in a joint and combined environment.

CONDITION: Acting as a general staff officer in a corps or a division, given the operational situation, the higher headquarters plan, appropriate references, practical exercises, and a written requirement to plan offensive or defensive operations.

STANDARD: The plan must -

- Be developed using the deliberate tactical decisionmaking process IAW ST 101-5.
- Conform to tactical doctrine IAW FM 63-1, FM 63-2, FM 63-2-1, FM 63-3, FM 71-100, FM 100-5, and FM 100-15.
- Be presented orally and/or in writing according to the formats and procedures in FM 101-5, FM 101-5-1, ST 22-2, and ST 101-5.

B. TASK: Prepare a commander in chief's strategic and operational assessment of his environment.

CONDITION: Given a specific commander in chief's area of responsibility, a scenario, assigned readings, classroom discussion notes, and an oral and/or written requirement with references.

STANDARD: Assessment will address -

- National interests of the US, allies, and threat nations.
- US, allied, and threat theater objectives and strategy.
- The commander in chief's strategic concept.

- Methods of achieving theater objectives IAW FM 100-5, FM 100-7, Joint Pub 3-0, and subcourse C510.

C. TASK: Apply the fundamentals of joint operational planning at the strategic and operational levels.

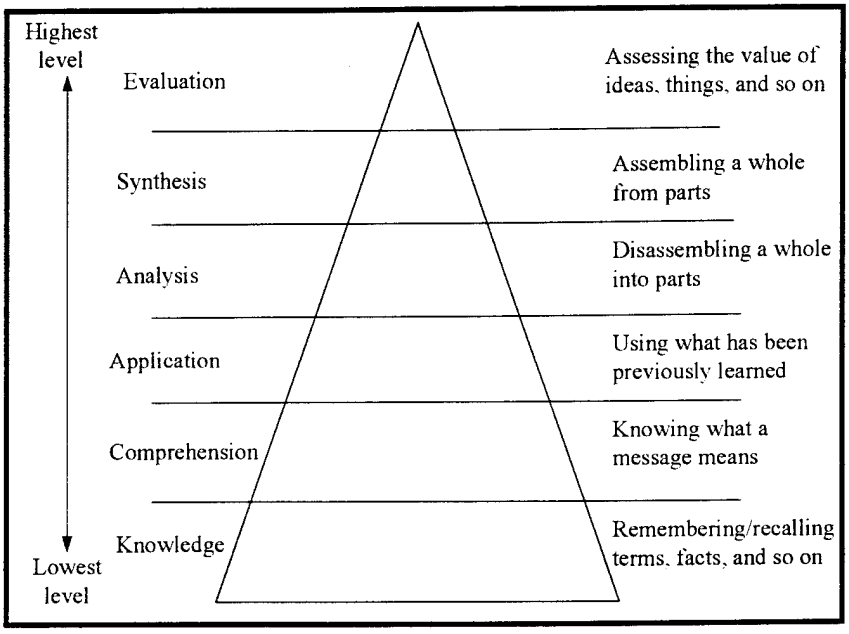
CONDITION: Given a scenario and an oral and/or written requirement with references.

STANDARD: Application should -

- Explain the organization and functions of a joint task force IAW classroom discussion and Joint Chiefs of Staff Pub 5-00.2.
- Develop the strategic and/or operational concept of the operation using the Joint Operations Planning and Execution System (JOPES), classroom discussions, and practical exercises IAW JCS Pub 5-03.1 and JCS Pub 3-0.
- Incorporate the use of service components and functional assets, including special operations forces and space assets, into the development of operations plans through practical exercises IAW classroom discussion and JCS Pub 3-0.

Appendix C

Bloom's Taxonomy of Cognitive Skills[91]



KNOWLEDGE includes those behaviors and test situations which emphasize the remembering, either by recognition or recall, of ideas, material, or phenomena. Remembering is the major psychological process involved in this skill.

COMPREHENSION includes those objectives, behaviors, or responses which represent an understanding of the literal message contained in a communication. Translation, interpretation, and extrapolation are the three types of behaviors that exist at this level.

APPLICATION involves using an appropriate techniques to solve a new problem without being prompted as to which technique is correct.

ANALYSIS emphasizes the breakdown of the material into its constituent parts and detection of the relationships of the parts and of the way they are organized.

SYNTHESIS involves the putting together of elements and parts so as to form a whole. This is a process of working with elements, parts, etc., and combining them in such a way as to constitute a pattern or structure not clearly there before.

EVALUATION is defined as the making of judgments about the value, for some purpose, of ideas, works, solutions, methods, material, etc. It involves the use of criteria as well as standards for appraising the extent to which particulars are accurate, effective, economical, or satisfying. The judgments may be either qualitative or quantitative. Although it is placed last in the cognitive domain, evaluation is not necessarily the last step in thinking. Evaluation occurs at all cognitive levels, sometimes as a prelude to movement to a new, higher level.

Verbs Associated with Objectives in the Cognitive Domain[92]

Knowledge		Comprehension		Application	
arrange	name	classify	recognize	apply	operate
define	order	describe	report	choose	practice
duplicate	recognize	discuss	restate	demonstrate	prepare
label	recall	explain	review	dramatize	schedule
list	relate	express	select	employ	sketch
match	repeat	identify	sort	illustrate	solve
memorize	reproduce	indicate	tell	interpret	use
		locate	translate		

Analysis		Synthesis		Evaluation	
analyze	differentiate	arrange	manage	appraise	judge
appraise	discriminate	assemble	organize	argue	predict
calculate	distinguish	collect	plan	assess	rate
categorize	examine	compose	prepare	attack	score
compare	experiment	construct	propose	choose	select
contrast	inventory	create	set up	compare	support
criticize	question	design	synthesize	estimate	value
diagram	test	formulate	write	evaluate	

Endnotes

[1] July 1994 National Security Strategy, 1

[2] James R. Fitzsimonds and Jan M. Van Tol, "Revolutions in Military Affairs," Joint Forces Quarterly, Spring 1994, 30.

[3] DA Pam 600-80, Executive Leadership, 51.

[4] Military Education Policy Document, CM-1618-93, CJCS, Washington, DC, 23 March 1993, II-7.

[5] DA Pam 600-3, Commissioned Officer Development and Career Management, 8 June 1995, 17.

[6] Ibid., 17.

[7] CGSC, C310, Fundamentals of Combat Operations, (Fort Leavenworth: US Army Command and General Staff College, August 1995), 1.

[8] Paul F. Gorman quotes both Eisenhower and Churchill in The Secret of Future Victories, (Fort Leavenworth, Kansas: CGSC Press, 1994), I-3.

[9] Larry I. Bland and Sharon R. Ritenour, ed., The Papers of George C. Marshall, Volume I, "The Soldier Spirit, December 1880-June 1939, (Baltimore: Johns Hopkins University Press, 1981), 531-533.

[10] M. Matloff, "The American Approach to War, 1919-1945" in The Theory and Practice of War, ed. by Michael Howard, (Bloomington: Indiana University Press, 1975), 215.

[11] Boyd L. Dastrup, US Army CGSC: A Centennial History, (Manhattan, Kansas: Sunflower University Press, 1982), 61.

[12] Ibid., 62.

[13] Ibid., 61-62.

[14] Timothy K. Nenninger, "Educating Officers: the Leavenworth Experience 1920-1940" in Military Review, November 1989, 60.

[15] CGSC, A Military History of the US Army Command and General Staff College, 30.

[16] Gorman, I-11.

[17] Dastrup, 75-76.

[18] Nenninger, 63.

[19] Dastrop, 72.

[20] Ibid, 74.

[21] Conversation between GEN J. Lawton Collins and LTC Charles C. Sperow as quoted by Charles E. Kirkpatrik in "Orthodox Soldiers: Army Formal Schools Between the Two World Wars," (a

Paper Presented to the 1990 Annual Meeting of the Organization of American Historians and Society for History in the Federal Government, 23-25 March 1990), 12.

[22] Dastrop, 76.

[23] The Papers of George C. Marshall, Volume I, December 1880-June 1939, 531-533.

[24] Nenninger, 67.

[25] T.N. Dupuy, A Genius for War: The German Army and General Staff, 1807-1945, (London, MacDonald and Jane's, 1977), 193.

[26] Ibid., 201.

[27] J.S. Corum, The Roots of Blitzkrieg, (Lawrence, Kansas: University Press of Kansas, 1982), 30.

[28] Ibid., 30-31.

[29] Ibid., 69.

[30] Ibid., 33-34.

[31] Ibid., 78-82.

[32] Ibid., 35.

[33] Ibid., 85.

[34] Hans von Seekt as quoted by Corum, 85.

[35] Ibid., 85-86.

[36] Ibid., 85.

[37] Ibid., 90.

[38] As quoted by Corum, 91.

[39] Ibid., 91-92.

[40] As described in Kirkpatrik, 10.

[41] Corum, 92.

[42] Russell F. Weigley, Eisenhower's Lieutenants, (Bloomington: Indiana University Press, 1981), 729.

[43] Frederic J. Brown, The US Army in Transition II, (New York: Brassey's (US) Inc., 1993), 110.

[44] Ibid., 111.

[45] Ibid., 118.

[46] Gordon R. Sullivan and Anthony M. Coroalles, Seeing the Elephant: Change and America's Army, (Unpublished), 49.

[47] Ibid., 6.

[48] DA Pam 600-32, Leader Development for the Total Army, (Washington: Headquarters, Department of the Army, 1991), 9-11.

[49] A list of "demands" for leaders appears on page 8. These include general things like 'solve problems and act decisively under pressure' and 'uphold the dignity of each individual' and 'display technical and tactical combined arms proficiency while exploiting the full potential of advanced technology.' These are useful, but do not address the complex nature of the future environment in any detail.

[50] DA Pam 600-80, 13.

[51] Emil K. Kluever, William L. Lynch, Michael T. Matthies, Thomas L. Owens, and John A. Spears, Striking a Balance in Leader Development: a Case for Conceptual Competence, (National Security Program Discussion Paper Series 92-02, Harvard University) vi.

[52] Ibid., 16.

[53] Ibid., 3, 51.

[54] William J. Rothwell and H. C. Kazanas, Mastering the Instructional Design Process: A Systematic Approach, (San Francisco: Jossey-Bass Publishers, 1992), 131.

[55] Benjamin S. Bloom, editor, Taxonomy of Educational Objectives, Handbook I: Cognitive Domain, (New York: David McKay Company, Inc., 1956), 18-19.

[56] Kluever, 63.

[57] E.F. Schumacher as quoted by Peter Senge, The Fifth Discipline, (New York: Doubleday/Currency, 1990), 283.

[58] Military Education Policy Document, CM-1618-93, CJCS, Washington, DC, 23 March 1993, II-7.

[59] Ibid., II-5. The five levels are precommisioning, primary (O1 - O3), intermediate, senior (O5, O6), and general/flag. Each level has its own institutions and focus.

[60] Rothwell, 70-71.

[61] Slide briefing presented to the incoming CGSOC class of 95/96 in August 1995. The briefing was developed and presented by the class director's office, CGSOC.

[62] Class Demographics, AY 1995/19965, CGSOC as complied by the Class Director's office, CGSC. This information was current as of 17 August 1995.

[63] Term I schedule, CGSOC, 95-96.

[64] CGSC, C310, Fundamentals of Combat Operations. (Fort Leavenworth: US Army Command and General Staff College. August 1995), 1.

[65] CGSC, C320, Corps and Division Combat Operations. (Fort Leavenworth: US Army Command and General Staff College, August 1995), 1.

[66] C310. 3-4.

[67] Ibid., 3.

[68] Rothwell, 135.

[69] Ibid., 135.

[70] C310, 3.

[71] Rothwell, 135.

[72] C310, 4.

[73] Rothwell, 135.

[74] Ibid., 135.

[75] US Military Academy Department of Behavioral Sciences and Leadership, Course Guide for PL 300, Military Leadership, (West Point, NY: USMA Press, 10 January 1983), 7-9 as cited by Kluever, 64.

[76] C320, 1.

[77] Ibid., 1.

[78] Rothwell, 135.

[79] C320, 2.

[80] Rothwell, 135.

[81] Bloom, 185.

[82] Bloom, 185.

[83] C320, 2.

[84] Rothwell, 135.

[85] John D. Rosenberger, The Burden Our Soldiers Bear . (US Army War College Individual Paper, Carlisle, PA: USAWC, 1 March 1995), 11.

[86] FM 100-5, Operations, 2-9

[87] Kluever, et al., 16.

[88] DA Pam 600-80, Executive Leadership, 3-4, 51.

[89] C310, 3-4.

[90] C320, 1-2.

[91] The diagram was derived from Rothwell, 135. The discussion of the categories was derived from Bloom, 62-207.

[92] Rothwell, 135.

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